

Lectotype designations of African bees of the genus *Ceratina* and allies

(Hymenoptera, Apoidea)

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Names proposed in the genus *Ceratina* for African species by C. T. Bingham, P. Cameron, H. Friese, M. F. Meunier, E. Strand, and J. Vachal lack designated types. The purpose of this paper is to validate 33 lectotype designations in anticipation of my monographic treatment of small carpenter bees of the genus *Ceratina* and its allies in Africa south of the Sahara and Madagascar. In each case the original author or subsequent reviser failed to designate a holotype, failed to indicate whether more than one specimen was examined, or referred ambiguously to a type among the syntypes. A list of 18 names based on single specimens is also included to document the existence of holotype specimens and their locations. The 51 designations below are intended to establish unequivocal primary type specimens for the names concerned. All species are discussed below as members of the genus *Ceratina* in which they were originally assigned. Wing length in millimeters was measured from the apex of the costal sclerite to the maximum curvature of the wing.

In each case the specimen, collection data, and original determination labels are consistent with the original description, type locality or localities, dates of collection, general character of the author's labels, and known repository for the type material. The choice of specimens is also consistent with the published indications of previous revisers, and their comments are noted in each case. Where both sexes were represented among the syntypes, males were favored as lectotypes because their taxonomic features are critical in the separation of species. The location of each lectotype is indicated by abbreviations given in the acknowledgments. Each type also has a red label with the indications: *Ceratina*, species, author, sex, lectotype or holotype, Howell V. Daly, 1973.

Twelve names from specimens of African *Ceratina* in the Brauns collection of the Transvaal Museum are included in the list of types published by the South African Museum's Association (Anonymous, 1958: 30-33). Of the twelve, seven are Brauns' unpublished manuscript names. Three of these were later described by Cockerell (1932: 272, 277, 278) from other specimens in the British Museum (*C. liliputana*,

male type No. 17B-255; *C. subulata*, male type No. 17B-314; *C. aloes* female lectotype designated below). Specimens bearing the remaining five names have red, handwritten labels stating that they are types of Friese's species. Dr. Brauns is known to have sent specimens to Friese for identification and description. However, not one of the alleged types of *Ceratina* in his collection has the characteristic determination label of Friese and the data on specimens bearing three of the names fail to match Friese's descriptions. In my judgment no evidence exists that the specimens in question were parts of the syntype series examined by Friese and in view of Recommendation 74D, I have chosen all the lectotypes for the species of Friese from the authenticated syntypes at the Zoological Museum in Berlin. Each of the designated specimens in Berlin has Friese's handwritten determination label, each usually has a red label of unknown origin with the imprint "Type" which often identifies the favored specimen, and each agrees in every detail with the original description.

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Lectotypes are designated for the following:

1. *aereola* Vachal, 1903: 383. Lectotype male; wing length, 4.9 mm. Labels: 1) pale green, printed "Bouyssoui, N'Doro, X-XI-98"; 2) white, written "aereola ♂ Vach."; 3) pale green, printed "Museum Paris, Coll. J. Vachal 1911"; 4) salmon, written "Holotype, *Ceratina aereola* Vachal, det. Y. Hirashima." Hirashima (1969: 651) comments, "In addition to the type series (2 ♀♀, 2 ♂♂) which is in the Paris Museum . . . The type of this species is the male." (MNHN)
2. *allodapoides* Strand, 1912: 282. Lectotype female; wing length, 5.3 mm. Labels: 1) blue, printed "Span. Guinea, Uelleburg, G. Tessman S. G."; 2) white, written "Ceratina allodapoides m ♀," printed "Strand det." (MNHU)

3. *aloes* Cockerell, 1932: 272. Lectotype female; wing length, 6.5 mm. Labels: 1) white, folded, written "Blaukrans, nr Calvinia, Nov. 17, L. O."; 2) white, Cockerell handwriting "Ceratina aloes Br ♀"; 3) white, printed "B.M. 1932-324, T. D. A. Cockerell." (BMNH)
4. *bouyssoui* Vachal, 1903: 383. Lectotype female; wing length, 9.3 mm. Labels: 1) white, printed "Lambarèn, X97"; 2) white, written "Ceratina bouyssoui ♀ Vach."; 3) green, printed "Museum Paris, Coll. J. Vachal 1911"; 4) salmon, written "Type"; 5) white, written "Megaceratina," printed "det. Y. Hirashima." This specimen commented on by Hirashima (1971: 254): "... I think, therefore, it should be regarded as the type." Labels 4 and 5 were placed on the specimen by him. (MNHN)
5. *braunsiana* Friese, 1905: 12. Lectotype female; wing length, 4.9 mm. Labels: 1) white, printed "Algoa Bay., Capland., Dr. H. Brauns," written "24 7 96"; 2) white, dashed border, written "Ceratina braunsiana ♀ Fr," printed "1904 Friese det." (MNHU)
6. *congoensis* Meunier, 1890: cci. Lectotype male; wing length, 4.0 mm. Labels: 1) white, written "Matadi, 21 Mars 1889"; 2) white, written "Ceratina congoensis Meunier ♂"; 3) white, written "Ceratina congoensis Meun. ♂, Type," printed "det. Vachal 1911"; 4) white, black line border, printed in red "Type." (IRSNB)
7. *daessalamica* Strand, 1911b: 18. Lectotype male; wing length, 3.7 mm. Labels: 1) blue, printed "D. O. Afrika, Daessalam, Pangani u. Hinterld, Regner S. G."; 2) white, written "Ceratina daessalamica m ♂," printed "Strand det." (MNHU)
8. *defeminata* Strand, 1911b: 20. Lectotype male; wing length, 4.9 mm. Labels: 1) blue, printed "Tanganyika-S. P. Reichard S."; 2) white, written "Ceratina defeminata m ♂," printed "Strand det." (MNHU)
9. *dentipes* Friese, 1914: 32. Lectotype male; wing length, 2.9 mm. Labels: 1) white, printed "Java, Buitzorg, Schmiedk."; 2) white, dashed border, written "Ceratina dentipes ♂ m Fr," printed "1900 Friese det." (MNHU)
10. *elongata* Friese, 1905: 14. Lectotype male; wing length, ca. 4.3 mm. Labels: 1) white, printed "D. O. Africa, Kigonsera, 1903"; 2) white, dashed border, written "Ceratina elongata ♂ Fr," printed "1904 Friese det." (MNHU)
11. *emarginata* Friese, 1905: 12. Lectotype female; wing length, 5.1 mm. Labels: 1) white, "Capland, Willowmor, Dr. Brauns," written "15-6-1904"; 2) white, dashed border, written "Ceratina emarginata ♀ Fr," printed "1904 Friese det." (MNHU)
12. *ericia* Vachal, 1903: 384. Lectotype female; wing length, 4.2 mm. Labels: 1) white, printed "Bata, 5 IX 98"; 2) blue, printed "Bouyssou, Congo"; 3) white, written "ericia ♀ Vach."; 4) pale green, printed "Museum Paris, Coll. J. Vachal 1911"; 5) red, printed "Type." (MNHN)
13. *harrarensis* Vachal, 1910: 532. Lectotype male; wing length, 4.4 mm. Labels: 1) blue, printed "Museum Paris, Harrar, Maurice de Rothschild, 1905"; 2) white, written, "Mars"; 3) white, written "Carat. Harrarandi Mars. No. 9"; 4) salmon, written, "Holotype, Ceratina harrarensis Vachal, 1909, det. Y. Hirashima." (MNHN)
14. *inermis* Friese, 1905: 8. Lectotype male; wing length, ca. 4.8 mm. Labels: 1) white, printed "Shilouvane, N. Transvaal, (Junod)," written "10.";

- 2) white, dashed border, written "Ceratina inermis ♂ Fr.," printed "1904 Friese det." (MNHU)
15. *labrosa* Friese, 1905: 11. Lectotype female; wing length, 5.9 mm. Labels: 1) white, printed "Capland, Willowmor, Dr. Brauns," written "9.6 1904"; 2) white, dashed border, written "Ceratina labrosa ♀ Fr.," printed "1904 Friese det." (MNHU)
16. *lativentris* Friese, 1905: 10. Lectotype male; wing length, 5.9 mm. Labels: 1) white, written "Madagask., Tolia, 03"; 2) white, dashed border, written "Ceratina lativentris ♂ Fr.," printed "1904 Friese det." (MNHU)
17. *lineola* Vachal, 1903: 385. Lectotype female; wing length, 4.6 mm. Labels: 1) gray, printed "Monteiro, Delagoa-Bay"; 2) quadrile, written "lineola Vach. ♀." (IRSNB)
18. *ludwigi* Strand, 1914: 174. Lectotype female; wing length, ca. 3.1 mm. Labels: 1) red, printed "Typus"; 2) white, written "Victoria, Kamerun, Lüdwigs"; 3) white, written "Ceratina ludwigi m ♀," printed "Strand det." (DEI)
19. *lunata* Friese, 1905: 10. Lectotype male; wing length, 4.8 mm. Labels: 1) white, printed "Shilouvane, N. Transvaal, (Junod)," written "12"; 2) white, dashed border, written "Ceratina lunata Fr.," printed "1904 Friese det." (MNHU)
20. *madecassa* Friese, 1900: 262. Lectotype male; wing length, 3.3 mm. Labels: 1) white, written "Madagask. Nossi-be, 17-XI-95, Voeltzkow"; 2) white, dashed border, written "Ceratina madecassa, ♂ Fr.," printed "1900 Friese det." (MNHU)
21. *minuta* Friese, 1905: 14. Lectotype male; wing length, 2.7 mm. Labels: 1) white, printed "D. O-Africa, Kigonsera, 1903"; 2) white, dashed border, written "Ceratina minuta ♂ Fr.," printed "1904 Friese det." (MNHU)
22. *moerenhouti* Vachal, 1903: 385. Lectotype female; wing length, 4.5 mm. Labels: 1) blue, printed "Vista (Congo), V. Moerenhout"; 2) white, black line border, printed in red "Type"; 3) white, written "moerenhouti ♀ Vach." (IRSNB)
23. *mucronata* Friese, 1905: 9. Lectotype male; wing length, 5.5 mm. Labels: 1) white, printed "Shilouvane, N. Transvaal (Junod)," written "12"; 2) white, dashed border, written "Ceratina mucronata ♂ Fr.," printed "1904 Friese det." (MNHU)
24. *nasalis* Friese, 1905: 8. Lectotype male; wing length, 5.9 mm. Labels: 1) white, written "Algoa Bay, Capland, 5 7 96," printed "Dr. Brauns"; 2) white, dashed border, written "Ceratina nasalis ♂ Fr.," printed "1904 Friese det." (MNHU)
25. *nigriceps* Friese, 1905: 11. Lectotype female, wing length, 4.3 mm. Labels: 1) white, written "Cradock, Capland"; 2) white, dashed border, written "Ceratina nigriceps ♀ Fr.," printed "1904 Friese det." (MNHU)
26. *opaca* Friese, 1905: 13. Lectotype male; wing length, 5.5 mm. Labels: 1) white, printed "Algoa Bay, Capland."; 2) white, dashed border, written "Ceratina opaca ♂ Fr.," printed "1904 Friese det." (MNHU)
27. *penicillata* Friese, 1905: 9. Lectotype male; wing length, 4.5 mm. Labels: 1) white, printed "Shilouvane, N. Transvaal, (Junod)," written "10"; 2) white, dashed border, written "Ceratina penicillata ♂ Fr.," printed "1904 Friese det." (MNHU)

28. *personata* Friese, 1905: 14. Lectotype female; wing length, 3.9 mm. Labels: 1) white, printed "W. Africa, Old Calabar, 190 (*date incomplete*), v. Stefenelli"; 2) white, dashed border, written "Ceratina personata ♀ Fr.," printed "1904 Friese det." (MNHU)
29. *subelongata* Strand, 1912: 283. Lectotype male; wing length, 4.6 mm. Labels: 1) blue, written "Sp. Guinea, Uelleburg, 6-8 1908, G. Tessman"; 2) white, written "Ceratina subelongata m ♂," printed "Strand det." (MNHU)
30. *sulcata* Friese, 1905: 13. Lectotype male; wing length, ca. 5.1 mm. Labels: 1) white, printed "Willowmore, Capland, Dr. Brauns," written "10.1 1902"; 2) white, dashed border, written "Ceratina sulcata ♂ Fr.," printed "1904 Friese det." (MNHU)
31. *tanganyicensis* Strand, 1911a: 137. Lectotype male; wing length, 4.8 mm. Labels: 1) blue, printed "Tanganyika-S., P. Reichard S."; 2) white, written "Ceratina tanganyicensis m ♂," printed "Strand det." (MNHU)
32. *tibialis* Friese, 1905: 9. Lectotype male; wing length, 4.1 mm. Labels: 1) white, printed "Algoa-Bay, Capland"; 2) white, dashed border, written "Ceratina tibialis ♂ Fr.," printed "1904 Friese det." (MNHU)
33. *truncata* Friese, 1905: 11. Lectotype male; wing length, 5.9 mm. Labels: 1) white, printed "Capland, Willowmore, Dr. Brauns," written "9.6 1904"; 2) white, dashed border, written "Ceratina truncata ♂ Fr.," printed "1904 Friese det." (MNHU)

The following names were based on single specimens. The location of the holotype is indicated in parenthesis:

1. *acutipyga* Strand, 1911b: 22, female; wing length, 5.0 mm (MNHU).
2. *bicarinata* Cameron, 1905: 198, female; wing length, 5.3 mm (AM).
3. *caesia* Vachal, 1903: 385, female; wing length, 3.5 mm (IRSNB).
4. *foveifera* Strand, 1911b: 27, female; wing length, 3.3 mm (MNHU).
5. *furcilinea* Strand, 1911b: 25, female; wing length, 4.4 mm (MNHU).
6. *guineae* Strand, 1912: 283, male; wing length, 6.0 mm (MNHU).
7. *guineana* Strand, 1911b: 19, male; wing length, 4.9 mm (MNHU).
8. *langenburgiae* Strand, 1911b: 15, male; wing length, 4.8 mm (MNHU).
9. *loa* Strand, 1912: 286, male; wing length, 4.6 mm (MNHU).
10. *nassiinsignita* Strand, 1912: 285, male; wing length, 4.1 mm (MNHU).
11. *nyassensis* Strand, 1911b: 26, female; wing length, 3.6 mm (MNHU).
12. *penicilligera* Strand, 1911b: 17, male; wing length, 5.3 mm (MNHU).
13. *rothchildiana* Vachal, 1910: 531, female; wing length, 5.3 mm (MNHN).
14. *senegalensis* Strand, 1911b: 24, female; wing length, 3.6 mm (MNHU).
15. *taborae* Strand, 1911b: 21, female; wing length, 5.1 mm (MNHU).
16. *togana* Strand, 1911b: 16, female; wing length, 4.9 mm (MNHU).
17. *viriditincta* Strand, 1911b: 23, male; wing length, 4.4 mm (MNHU).
18. *vittata* Bingham, 1912: 382, male (sex misdetermined, description includes male-specific characters); wing length, 4.6 mm (UM).

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RECENT LITERATURE

SCABIES—by Kenneth Mellanby. E. W. Classey Ltd., reprint, VI + 81 pp. \$3.50 (paperback). U. S. distributor, Entomological Reprint Specialists, P. O. Box 77971, Dockweiler Station, Los Angeles, California 90007.

Primarily of historical interest, this small volume which was first published during World War II has been reissued virtually unchanged. The text includes chapters on the anatomy and bionomics of the itch mite, as well as discussions of the pathology, control and prevention of scabies.—Editor.